

Serial No. 10/736,921
60246-220; 10691**REMARKS**

Claims 30 and 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. Claims 30 and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that the specification fails to describe the variable x in Mn_xO_2 , and the claimed invention is not enabling and is indefinite. Applicant respectfully disagrees.

The claimed invention is enabling and is not indefinite. The variable x is the number of atoms of manganese in the compound Mn_xO_2 , and one skilled in the art would understand this. X is a variable that generally is open as to its possibilities. X denotes any number of atoms of manganese that could bond with two oxygen atoms. Manganese and oxygen only bond together at specific ratios. Therefore, if a compound includes two oxygen atoms, the number x can represent any number of manganese atoms that are needed to form a compound of manganese oxide including two oxygen atoms. The Examiner states on page 4 of the Final Office Action that x can be more than one number, whether the number is an integer or a fraction. However, atoms only bond as numbers that are integers and not fractions. Therefore, because of the bonding of manganese and oxygen together, one skilled in the art would know what numbers the variable x can be. For example, x can be 1 to form MnO_2 . However, this is only an example. The specification is enabling and is not indefinite. Applicant respectfully requests that the rejection be withdrawn.

Claims 1-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld in view of Kobayashi. Reisfeld teaches a coating of titanium dioxide. The Examiner admits that Reisfeld does not disclose a layered catalytic coating including a first layer of a photocatalytic coating, a second layer of a photocatalytic metal loaded metal compound coating and a third layer of a thermocatalytic coating. The Examiner states that Kobayashi discloses these features, and it would be obvious to employ these features in Reisfeld. The Examiner further states that the specification does not disclose the benefits of arranging each of the layers in the claimed order as compared to the generally and randomly applied layers as taught by Kobayashi, and therefore the claimed invention is obvious. Applicant respectfully disagrees.

The claimed invention is not obvious. Kobayaski does not disclose a layered catalytic coating including a first layer of a photocatalytic coating, a second layer of a photocatalytic metal

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loaded metal compound coating and a third layer of a thermocatalytic coating. Kobayaski only generally discloses a photocatalytic coating of titanium dioxide or titanium dioxide including a metal or metal/oxide. Kobayaski generally discloses that "a plurality of different photocatalyst coating compositions may be provided followed by successive coating of the plurality of different photocatalyst coating compositions on the surface of the substrate." However, Kobayaski does not disclose any specific layers that form a coating, including the claimed layers, and there is no suggestion in Kobayaski to employ the claimed layers to form a coating.

The claimed layers in the claimed order provide benefits that would not be obtained by generally and randomly applying layers on a substrate as disclosed in Kobayaski. Applicant has invented a unique layered coating that provides benefits over the prior art and which allows the coating to be tailored for a specific application. That is, the choice and the selection of the particular layers is inventive. Just randomly and generally applying layers to a substrate would not produce the effect of the claimed invention. There is no suggestion or teaching in Kobayaski to form the coating with the layers and order as claimed.

The Examiner also cited *In re Japikse* 86 USPQ 70, stating that "rearrangement of parts was held to have been obvious." In *In re Japikse*, claims to a hydraulic power press included features directed to a position of a starting switch. The Court held that there is "no invention in shifting the starting switch disclosed by Cannon to a different position since the operation of the device would not thereby be modified." That is, the Court held that moving the position of the starting switch was not a patentable feature because moving the position of the starting switch would not have modified the operation of the device. As disclosed in the specification, each layer provides a different function. For example, titanium dioxide or metal oxide doped titanium dioxide are effective in oxidizing volatile organic compounds and semi-volatile organic compounds to carbon dioxide and water (paragraph 25). Titanium dioxide located with a Group VIII noble metal is highly reactive with low polarity organic compounds (paragraph 32). Gold on titanium dioxide oxidizes carbon monoxide to carbon dioxide (paragraph 37). Each of these different layers provide different functions. Therefore, if the layers in a coating were changed or randomly applied, the results produced by the coating would change. That is, the operation of the coating would be modified by changing or modifying the layers. *In re Japikse* relates to a case where operation of the device would not be modified by changing the position of the elements. The claimed invention is not obvious, and Applicant respectfully requests that the

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rejection be withdrawn.

There is also no suggestion in any of the references to use three substrates each having a different coating as recited in claims 24-27. The Examiner states that Reisfeld discloses more than one substrate and that one skilled in the art would provide each of Reisfeld's substrates with a different coating to increase the photocatalytic oxidation. However, the Examiner supplies no evidence of this assertion. Applicant cannot respond without the evidence, and thus ask that holding be dropped or evidence supplied. Notably, the relevant question is not whether different coatings on different substrates has ever been done anywhere. Instead, the question is whether it would have been obvious to employ the features in the claimed environment. Clearly, it would not have been. Reisfeld only includes a coating 120 on filter elements 12, 14 and 16. Different coatings 120 are not disclosed. Kobayashi only generally discloses coatings, but does not disclose, suggest or teach using a different coating on each of multiple substrates. Neither references discloses, suggests or teaches using a different coating on each of different substrates. Therefore, the references taken together do not disclose, suggest or teach the claimed invention. The claimed invention is not obvious, and Applicant respectfully requests that the rejection be withdrawn.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reisfeld in view of Kobayashi and Applicant's admission. The Examiner states that the references do not disclose the step of forming reactive hydroxyl radical and air that contains carbon monoxide. The Examiner states that Applicant admits that indoor air comprises carbon monoxide and that hydroxyl radical is formed when titanium dioxide is illuminated with ultraviolet light, and the claimed invention is obvious. Applicant respectfully disagrees. Claim 35 depends on patentable independent claim 28 and is allowable for the reasons set forth above. Claim 35 is not obvious because independent claim 28 is not obvious in view of Reisfeld and Kobayashi. Applicant respectfully requests that the rejection be withdrawn.

Thus, claims 1-35 are in condition for allowance. No additional fees are seen to be required. If any additional fees are due, however, the Commissioner is authorized to charge Deposit Account No. 50-1482, in the name of Carlson, Gaskey & Olds, P.C., for any additional fees or credit the account for any overpayment. Therefore, favorable reconsideration and allowance of this application is respectfully requested.

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Respectfully Submitted,

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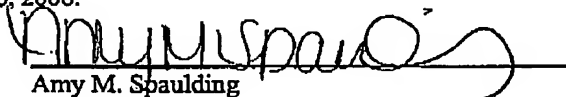
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CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office, 571-273-8300 on April 6, 2006.



Amy M. Spaulding